

# SAFETY DATA SHEET

|                                      |                                                                                                          |
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| Product name:<br><b>AMSORB® Plus</b> | Document Number: MSDS-1401<br>Issue: 11.1<br>Creation Date: October 2004<br>Revision Date: 06 March 2025 |
|--------------------------------------|----------------------------------------------------------------------------------------------------------|

| 1   | IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING        |                                                                                                                                                                                                  |
|-----|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | Product identifier                                                            | AMSORB® Plus                                                                                                                                                                                     |
| 1.2 | Relevant identified uses of the substance or mixture and uses advised against | Carbon dioxide (CO <sub>2</sub> ) absorbent for medical use only; suitable for use in human and animal anaesthesia.                                                                              |
| 1.3 | Details of the supplier of the safety data sheet                              | Armstrong Medical Limited<br>Wattstown Business Park, Newbridge Road, Coleraine<br>Northern Ireland, BT52 1BS<br>Tel: +44 (0) 28 7035 6029<br>e-mail: regulatory.respiratory@eakinhealthcare.com |
| 1.4 | Emergency telephone number UK                                                 | <b>UFI: QPRC-46U7-MHA8-KH2G</b><br>+44 (0) 1865 407333 (UK)                                                                                                                                      |
| 1.5 | Emergency telephone number NZ                                                 | GE Healthcare: 0800 659 465 (NZ)<br>9am-5pm<br>NPC 24 hour: 0800 764 766 (0800 POISON)                                                                                                           |

| 2          | HAZARDS IDENTIFICATION                                                              |                                                                                                                                  |             |         |
|------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------|---------|
| 2.1        | Classification of the substance or mixture                                          |                                                                                                                                  |             |         |
|            | Classification according to Regulation (EC) No 1272/2008 (CLP/GHS) – see section 11 |                                                                                                                                  |             |         |
|            | H315                                                                                | Skin Irrit. 2                                                                                                                    |             |         |
|            | H319                                                                                | Eye Dam. 1                                                                                                                       |             |         |
|            | H335                                                                                | STOT SE 3                                                                                                                        |             |         |
| 2.2        | Label elements                                                                      |                                                                                                                                  |             |         |
|            | Labelling in accordance with EC Regulation No 1272/2008 (CLP/GHS)                   |                                                                                                                                  |             |         |
|            | Pictogram                                                                           |                                               | Signal word | WARNING |
|            | Hazard statements                                                                   |                                                                                                                                  |             |         |
|            | H315                                                                                | Causes skin irritation.                                                                                                          |             |         |
|            | H319                                                                                | Causes serious eye irritation.                                                                                                   |             |         |
|            | H335                                                                                | May cause respiratory irritation.                                                                                                |             |         |
|            | Precautionary statements                                                            |                                                                                                                                  |             |         |
|            | P280                                                                                | Wear protective gloves/protective clothing/eye protection/face protection.                                                       |             |         |
|            | P314                                                                                | Get medical advice/attention if you feel unwell.                                                                                 |             |         |
|            | P261                                                                                | Avoid breathing dust/fume/gas/mist/vapours/spray.                                                                                |             |         |
|            | P302/352                                                                            | If on skin: wash with plenty of soap and water.                                                                                  |             |         |
|            | P305/351/338                                                                        | If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |             |         |
|            | P332/313                                                                            | If skin irritation occurs: get medical advice/attention.                                                                         |             |         |
|            | P304/340                                                                            | If inhaled: remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |             |         |
|            | P310                                                                                | Immediately call a POISON CENTER or doctor/physician.                                                                            |             |         |
|            | 2.3                                                                                 | Other hazards                                                                                                                    |             |         |
| None known |                                                                                     |                                                                                                                                  |             |         |

| 3   | COMPOSITION/INFORMATION ON INGREDIENTS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |           |                                                              |               |
|-----|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|--------------------------------------------------------------|---------------|
| 3.2 | Mixture characterisation               | Solid base plus additives.<br>The CLP classifications required in this section are related to that of the product supplied. To comply with the legislation the classification of the relevant ingredients of the product, as if they were present at 100%, must be outlined. Where ingredients are present in the product at very low concentrations the level of risk to the user is reduced, hence the reason that the classifications for the individual components and the product are different. |           |           |                                                              |               |
|     | Chemical name                          | CAS-No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Index No. | EC No.    | Classification                                               | Concentration |
|     | Calcium Hydroxide                      | 1305-62-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No data   | 215-137-3 | CLP: Skin Irrit. 2 H315<br>Eye Dam. 1 H318<br>STOT SE 3 H335 | <85%          |

|                  |            |              |           |                   |       |
|------------------|------------|--------------|-----------|-------------------|-------|
| Calcium Sulphate | 7778-18-9  | No data      | 231-900-3 | Not classified    | <1.5% |
| Calcium Chloride | 10043-52-4 | 017-013-00-2 | 233-140-8 | Eye Irrit. 2 H319 | <3.5% |

| 4 FIRST AID MEASURES |                                                                            |                                                                                                                                                |
|----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1                  | Description of first aid measures                                          |                                                                                                                                                |
|                      | Inhalation                                                                 | Remove casualty to fresh air and provide warmth and rest. If upper respiratory tract is inflamed, seek medical advice.                         |
|                      | Skin contact                                                               | Clean areas of skin affected immediately with soap and plenty of water. If necessary, seek medical advice.                                     |
|                      | Eye contact                                                                | Immediately wash out eye thoroughly with plenty of water until irritation subsides; seek medical advice.                                       |
|                      | Ingestion                                                                  | Unlikely route of exposure. But if product is swallowed, do not induce vomiting. Drink plenty of water and, if necessary, seek medical advice. |
| 4.2                  | Most important symptom and effects, both acute and delayed                 | Most acute symptom is eye irritation. No known delayed effects.                                                                                |
| 4.3                  | Indication of any Immediate medical attention and special treatment needed | Treatment as described above.                                                                                                                  |

| 5 FIREFIGHTING MEASURES |                                                       |                                                                              |
|-------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|
| 5.1                     | Extinguishing media                                   | Water, Foam, CO <sub>2</sub> and Powder are all suitable fire extinguishers. |
| 5.2                     | Special hazards arising from the substance or mixture | Material is non-combustible. Packaging may be combustible.                   |
| 5.3                     | Advice for firefighters                               | Self-contained breathing apparatus may be required                           |

| 6 ACCIDENTAL RELEASE MEASURES |                                                                     |                                                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1                           | Personal precautions, protective equipment and emergency procedures | Adhere to personal protective measures, avoid inhaling high concentrations of dust and avoid skin and eye contact.                                                                                                                                  |
| 6.2                           | Environmental precautions                                           | None known.                                                                                                                                                                                                                                         |
| 6.3                           | Methods and material for containment and cleaning up                | In the event of spillage, take up mechanically (e.g. sweep or vacuum up) into tightly closed containers. Adhere to personal protective measures. Flush any remainder with plenty of water. Label container and dispose of as per normal procedures. |
| 6.4                           | Reference to other sections                                         | See section 8 for personal protective equipment.                                                                                                                                                                                                    |

| 7 HANDLING AND STORAGE |                                                              |                                                                                                                                       |
|------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 7.1                    | Precautions for safe handling                                | Handle with care to avoid spillages. Avoid the raising and deposition of dust.                                                        |
| 7.2                    | Conditions for safe storage, including any incompatibilities | Store in a clean, dry environment with adequate ventilation. Store sealed containers at ambient conditions, avoiding direct sunlight. |
| 7.3                    | Specific end use(s)                                          | As a chemical absorbent for carbon dioxide (CO <sub>2</sub> ) in anaesthesia.                                                         |

| 8   | EXPOSURE CONTROL/PERSONAL PROTECTION |                                                                                                                                                                                                                               |    |       |                            |
|-----|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------|----------------------------|
| 8.1 | Control Parameters                   | Workplace Exposure Limits (WELs) have been assigned by the HSE (EH40/2005)                                                                                                                                                    |    |       |                            |
|     |                                      | STEL (15 mins)                                                                                                                                                                                                                | 4  | mg/m³ | Data for calcium hydroxide |
|     |                                      | LTEL (8 hour TWA)                                                                                                                                                                                                             | 1  | mg/m³ |                            |
|     |                                      | STEL (15 mins)                                                                                                                                                                                                                | -  | mg/m³ | Data for calcium sulphate  |
|     |                                      | LTEL (8 hour TWA)                                                                                                                                                                                                             | 10 | mg/m³ |                            |
| 8.2 | Exposure controls                    |                                                                                                                                                                                                                               |    |       |                            |
|     | Appropriate engineering controls     | N/A                                                                                                                                                                                                                           |    |       |                            |
|     | Personal protection equipment        | Observe normal standards for handling chemicals.<br>Wash hands before breaks and after work.<br>Avoid inhalation of dust if raised.<br>Wear personal protective equipment appropriate to the task (see below).                |    |       |                            |
|     | Eye/face protection                  | Safety goggles to minimise risk of eye contamination                                                                                                                                                                          |    |       |                            |
|     | Skin protection                      | Suitable gloves; wash thoroughly if skin contact occurs.                                                                                                                                                                      |    |       |                            |
|     | Respiratory protection               | Approved dust mask or respirator for dust (if ventilation is insufficient).                                                                                                                                                   |    |       |                            |
|     | Thermal hazards                      | Excessive heat production during reaction. Canister is likely to reach a maximum temperature of 45°C which is not deemed sufficient to cause damage to skin or body tissues. Care should be taken when removing the canister. |    |       |                            |
|     | Other protection                     | N/A                                                                                                                                                                                                                           |    |       |                            |

| 9 PHYSICAL AND CHEMICAL PROPERTIES                        |  |
|-----------------------------------------------------------|--|
| Information on the basic physical and chemical properties |  |

|     |                                 |                                            |                                   |                       |
|-----|---------------------------------|--------------------------------------------|-----------------------------------|-----------------------|
| 9.1 | Physical state                  | Solid white (purple when expired) granules | Colour                            | White or coloured     |
|     | Odour                           | Odourless                                  | pH                                | ~12.5                 |
|     | Boiling pt./range               | Not determined                             | Melting point/freezing point      | Not determined        |
|     | Flash Point                     | Not applicable                             | Relative density                  | ~ 2 g/cm <sup>3</sup> |
|     | Solubility                      | Slight                                     | Odour threshold                   | Not applicable        |
|     | Evaporation rate                | Not applicable                             | Flammability                      | Not applicable        |
|     | Lower and upper explosion limit | Not applicable                             | Vapour Pressure                   | Not applicable        |
| 9.2 | Relative vapour density         | Not applicable                             | Partition coeff. Log P oct /Water | Not applicable        |
|     | Auto-ignition temperature       | Not applicable                             | Kinematic viscosity               | Not applicable        |
|     | Explosive properties            | Not determined                             | Oxidising properties              | Not determined        |
|     | Decomposition temperature       | Not determined                             | Particle characteristics          | Not determined        |
| 9.2 | Other information               | None known                                 |                                   |                       |

|           |                                    |                                                   |  |  |
|-----------|------------------------------------|---------------------------------------------------|--|--|
| <b>10</b> | <b>STABILITY AND REACTIVITY</b>    |                                                   |  |  |
| 10.1      | Reactivity                         | Heat is generated if exposed to acids             |  |  |
| 10.2      | Chemical stability                 | Stable under normal conditions of handling        |  |  |
| 10.3      | Possibility of hazardous reactions | Hazardous polymerisation will not occur           |  |  |
| 10.4      | Conditions to avoid                | Contact with air – formation of calcium carbonate |  |  |
| 10.5      | Incompatible material              | Chloroform, trichloroethylene                     |  |  |
| 10.6      | Hazardous decomposition products   | None                                              |  |  |

|           |                                      |                                                                                                                                                                                                                                                                                    |         |                   |                         |               |                            |
|-----------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------|-------------------------|---------------|----------------------------|
| <b>11</b> | <b>TOXICOLOGICAL INFORMATION</b>     |                                                                                                                                                                                                                                                                                    |         |                   |                         |               |                            |
| 11.1      | Information on toxicological effects |                                                                                                                                                                                                                                                                                    |         |                   |                         |               |                            |
|           | Hazard Class                         | Method                                                                                                                                                                                                                                                                             | Species | Route of exposure | Effective dose          | Exposure Time | Results                    |
|           | Acute Toxicity                       | LD <sub>50</sub>                                                                                                                                                                                                                                                                   | Rat     | Oral              | > 2000 mg/kg (OECD 425) | No data       | Data for calcium hydroxide |
|           | Skin corrosion/irritation            | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Serious eye damage/irritation        | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Respiratory or skin sensitisation    | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Germ cell mutagenicity               | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Carcinogenicity                      | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Reproductive toxicity                | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | STOT-single exposure                 | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | STOT-repeated exposure               | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Aspiration hazard                    | No data                                                                                                                                                                                                                                                                            | No data | No data           | No data                 | No data       | No data                    |
|           | Dermal compatibility                 | Severe to moist skin tissue, eyes, and exposed cuts                                                                                                                                                                                                                                |         |                   |                         |               |                            |
|           | Mucous membrane                      | Irritant also to respiratory system and nasal passage.                                                                                                                                                                                                                             |         |                   |                         |               |                            |
|           | Other information                    | Repeated or prolonged contact of the skin can cause redness, desquamation, and fissures. Prolonged inhalation of dust may cause respiratory disease due to trace amounts of crystalline silica.<br>Calcium hydroxide is not listed on the MSHA, OSHA or IARC lists of carcinogens. |         |                   |                         |               |                            |

|           |                                |                                                       |                   |                                                    |
|-----------|--------------------------------|-------------------------------------------------------|-------------------|----------------------------------------------------|
| <b>12</b> | <b>ECOLOGICAL INFORMATION</b>  |                                                       |                   |                                                    |
| 12.1      | Toxicity                       | LC <sub>50</sub>                                      | Aquatic organisms | NOEC (14d) for marine water invertebrates: 32 mg/l |
| 12.2      | Persistence and degradability  | Not relevant for inorganic substance                  |                   |                                                    |
| 12.3      | Bioaccumulative potential      | Not relevant for inorganic substance                  |                   |                                                    |
| 12.4      | Mobility in soil               | Low mobility due to low solubility                    |                   |                                                    |
| 12.5      | Results of PBT/vPvB assessment | Not relevant for inorganic substance                  |                   |                                                    |
| 12.6      | Other adverse effects          | None known – converts to naturally occurring minerals |                   |                                                    |

|           |                                |  |  |  |
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| <b>13</b> | <b>DISPOSAL CONSIDERATIONS</b> |  |  |  |
|-----------|--------------------------------|--|--|--|

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|------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.1 | Waste treatment methods | Dispose in accordance with national and local authority regulations. Dispose by licensed contractor and carrier. The product should be disposed as non-contaminated clinical waste, unless specifically identified as clinically contaminated or hazardous clinical waste. Primary packaging, such as plastics enclosure container or pouch is an enclosure for this product and is intended for no other purpose. Other packaging such as shelf cartons can be reused and recycled in accordance with national and local authority regulations. |
|------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| 14   | TRANSPORT INFORMATION                   |                |      |                                        |               |
|------|-----------------------------------------|----------------|------|----------------------------------------|---------------|
| 14.1 | United Nations number (ADR, IMDG, IATA) | Not regulated  | 14.2 | Proper shipping name (ADR, IMDG, IATA) | Not regulated |
| 14.3 | Transport class(s) (ADR, IMDG, IATA)    | Not regulated  | 14.4 | Packing group (ADR, IMDG, IATA)        | Not regulated |
| 14.5 | Environmental hazards (ADR, IMDG, IATA) | None           | 14.6 | Special procedures (ADR, IMDG, IATA)   | Not regulated |
| 14.7 | Transport in bulk                       | Not applicable |      |                                        |               |

| 15   | REGULATORY INFORMATION                                                                         |                                                                                                                                                              |
|------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.1 | Safety, health and environmental regulations/legislation specific for the substance or mixture | The product is classified in accordance with EC Regulation 1272/2008 (CLP). Other regulatory information and provisions are not applicable for this product. |
| 15.2 | Chemical safety assessment                                                                     | No chemical safety assessment has been performed for this substance.                                                                                         |

| 16                                                       | OTHER INFORMATION                                                                                                                                                                                                                                         |  |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Indication of changes                                    | This material safety data sheet has been revised in accordance with EC Regulation 1272/2008 (CLP) and in response to REACH regulations, May 2024.                                                                                                         |  |
| Abbreviations or acronyms                                | None                                                                                                                                                                                                                                                      |  |
| Key literature reference and sources of data             | Other suppliers' safety data sheets, Annex VI of the CPL Regulation (EC) No 1272/2008, EH40 (2005)                                                                                                                                                        |  |
| Classification according to Regulation (EC) Nr 1272/2008 | Classification procedure                                                                                                                                                                                                                                  |  |
| Skin Corr.1; H315                                        |                                                                                                                                                                                                                                                           |  |
| Relevant H Statements (number and full text)             | H315, cause skin irritation<br>H318, causes serious eye damage<br>H335, may cause respiratory irritation                                                                                                                                                  |  |
| Training advice                                          | None                                                                                                                                                                                                                                                      |  |
| Further Information                                      | Complies with COSHH Regulations.<br>This information is based on our present state of knowledge and is intended to describe out products from the point of view of the safety requirements. It should not be construed as guaranteeing specific problems. |  |